

SEQUENCE LISTING

<110> Performance Plants, Inc.

<120> Hydroxypyruvate Reductase Nucleic Acids, Polypeptides, Promoter Elements and Methods of Use Thereof in Plants

<130> 22542-010-061

<140> PCT/IB03/06390

<141> 2003-11-18

<150> 60/427,204

<151> 2002-11-18

<160> 30

<170> PatentIn version 3.2

<210> 1

<211> 1161

<212> DNA

<213> Artificial

<220>

<223> Hydroxypyruvate reductase (HPR) nucleic acid sequence

<400> 1

atggcgaaac cgggtgtccat tgaagtgtat aatcctaata ggaataacag agttgttagc	60
acaaaaccga tgcctggaac tcgctggatc aatctcttgg tagaccaagg ttgtcgcgtt	120
gagatatgtc atttgaagaa gacaatcttg tctgtagaag atatcattga tctgatcgga	180
gacaagtgtg atggagtcac cggtcagttg acggaagatt ggggagagac tctgttctca	240
gctttgagca aagctggagg gaaagctttc agtaacatgg ccgttggtta taacaacggt	300
gatgttgaag ctgccataa gtatggaatt gctgtcggta acactccggg agtggtgact	360
gagacgacgg ctgaactagc tgcttctctt tccttggtcg ctgcaagaag aattgttgaa	420
gccgacgaat tcatgagagg tggcttgtag gagggatggc ttctcatct gtttgtgggg	480
aacttactta aaggacagac tgttgagatt attggagctg gacgtattgg atctgcttat	540
gctagaatga tgggtggaagg gttcaagatg aatttgatct actttgatct ttaccaatcc	600
actcgtcttg agaaatttgt gacagcttat ggacagttct tgaaagcaaa tggagaacaa	660
cctgtgacat ggaaacgagc ttcgtccatg gaggaggtgc tgcgtgaggc tgatctgata	720
agtcttcacc cgggtgctgga caaaaccact taccatcttg tcaacaagga gaggcttgcc	780
atgatgaaaa aggaagcaat ccttgtgaac tgcagcagag gtcctgtgat cgatgaggca	840
gctttggtcg aacatctcaa agagaaccgg atgttccgag ttggtctcga tgtgttcgag	900
gaagagccat tcatgaaacc agggcttgct gatacgaaaa acgctattgt tgttcctcac	960
attgcttctg cttccaagtg gactcgtgaa ggaatggcta cgcttgcagc tctcaacgtc	1020

ctcggaagag tcaaagggta cccgatttgg catgaccgga accgagtcga tccattcttg 1080
 aacgaaaacg cttcaccgcc caatgccagt ccaagcatcg tcaactcaaa ggccttagga 1140
 ttgcctgttt cgaagctatg a 1161

<210> 2
 <211> 386
 <212> PRT
 <213> Artificial

<220>
 <223> encoded HPR protein sequence

<400> 2
 Met Ala Lys Pro Val Ser Ile Glu Val Tyr Asn Pro Asn Gly Lys Tyr
 1 5 10 15
 Arg Val Val Ser Thr Lys Pro Met Pro Gly Thr Arg Trp Ile Asn Leu
 20 25 30
 Leu Val Asp Gln Gly Cys Arg Val Glu Ile Cys His Leu Lys Lys Thr
 35 40 45
 Ile Leu Ser Val Glu Asp Ile Ile Asp Leu Ile Gly Asp Lys Cys Asp
 50 55 60
 Gly Val Ile Gly Gln Leu Thr Glu Asp Trp Gly Glu Thr Leu Phe Ser
 65 70 75 80
 Ala Leu Ser Lys Ala Gly Gly Lys Ala Phe Ser Asn Met Ala Val Gly
 85 90 95
 Tyr Asn Asn Val Asp Val Glu Ala Ala Asn Lys Tyr Gly Ile Ala Val
 100 105 110
 Gly Asn Thr Pro Gly Val Leu Thr Glu Thr Thr Ala Glu Leu Ala Ala
 115 120 125
 Ser Leu Ser Leu Ala Ala Ala Arg Arg Ile Val Glu Ala Asp Glu Phe
 130 135 140
 Met Arg Gly Gly Leu Tyr Glu Gly Trp Leu Pro His Leu Phe Val Gly
 145 150 155 160
 Asn Leu Leu Lys Gly Gln Thr Val Gly Val Ile Gly Ala Gly Arg Ile
 165 170 175
 Gly Ser Ala Tyr Ala Arg Met Met Val Glu Gly Phe Lys Met Asn Leu
 180 185 190
 Ile Tyr Phe Asp Leu Tyr Gln Ser Thr Arg Leu Glu Lys Phe Val Thr
 195 200 205
 Ala Tyr Gly Gln Phe Leu Lys Ala Asn Gly Glu Gln Pro Val Thr Trp
 210 215 220
 Lys Arg Ala Ser Ser Met Glu Glu Val Leu Arg Glu Ala Asp Leu Ile
 225 230 235 240
 Ser Leu His Pro Val Leu Asp Lys Thr Thr Tyr His Leu Val Asn Lys
 245 250 255

Glu Arg Leu Ala Met Met Lys Lys Glu Ala Ile Leu Val Asn Cys Ser
 260 265 270
 Arg Gly Pro Val Ile Asp Glu Ala Ala Leu Val Glu His Leu Lys Glu
 275 280 285
 Asn Pro Met Phe Arg Val Gly Leu Asp Val Phe Glu Glu Glu Pro Phe
 290 295 300
 Met Lys Pro Gly Leu Ala Asp Thr Lys Asn Ala Ile Val Val Pro His
 305 310 315 320
 Ile Ala Ser Ala Ser Lys Trp Thr Arg Glu Gly Met Ala Thr Leu Ala
 325 330 335
 Ala Leu Asn Val Leu Gly Arg Val Lys Gly Tyr Pro Ile Trp His Asp
 340 345 350
 Pro Asn Arg Val Asp Pro Phe Leu Asn Glu Asn Ala Ser Pro Pro Asn
 355 360 365
 Ala Ser Pro Ser Ile Val Asn Ser Lys Ala Leu Gly Leu Pro Val Ser
 370 375 380
 Lys Leu
 385

<210> 3
 <211> 1161
 <212> DNA
 <213> Artificial

<220>
 <223> nucleotide sequence complimentary to HPR

<400> 3
 tcatagcttc gaaacaggca atcctaaggc ctttgagttg acgatgcttg gactggcatt 60
 gggcggtgaa gcgttttctgt tcaagaatgg atcgactcgg ttcgggtcat gccaaatcgg 120
 gtaccctttg actcttccga ggacgttgag agctgcaagc gtagccattc cttcacgagt 180
 ccacttgga gagaagcaa tgtgaggaac aacaatagcg tttttcgtat cagcaagccc 240
 tggtttcatg aatggctctt cctcgaacac atcgagacca actcgggaaca tcgggttctc 300
 tttgagatgt tcgaccaaag ctgcctcatc gatcacagga cctctgctgc agttcacaag 360
 gattgcttcc tttttcatca tggcaagcct ctcttggttg acaagatggg aagtggtttt 420
 gtccagcacc ggggtgaagac ttatcagatc agcctcacgc agcacctcct ccatggacga 480
 agctcgtttc catgtcacag gttgttctcc atttgctttc aagaactgtc cataagctgt 540
 cacaaatttc tcaagacgag tggattggta aagatcaaag tagatcaaat tcatcttgaa 600
 cccttcacac atcattctag cataagcaga tccaatacgt ccagctccaa taactccaac 660
 agtctgtcct ttaagtaagt tccccacaaa cagatgagga agccatccct cgtacaagcc 720
 acctctcatg aattcgtcgg cttcaacaat tcttcttgca gcagccaagg aaagagaagc 780
 agctagttca gccgtcgtct cagtcaacac tcccggagtg ttaccgacag caattccata 840

cttattggca gcttcaacat caacgttggt ataaccaacg gccatgttac tgaaagcttt 900
 ccctccagct ttgctcaaag ctgagaacag agtctctccc caatcttccg tcaactgacc 960
 gatgactcca tcacacttgt ctccgatcag atcaatgata tcttctacag acaagattgt 1020
 cttcttcaaa tgacatatct caacgcgaca accttgggtct accaagagat tgatccagcg 1080
 agttccaggc atcgggttttg tgctaacaac tctgtatttc ccattaggat tatacacttc 1140
 aatggacacc ggtttcgcca t 1161

<210> 4
 <211> 512
 <212> DNA
 <213> Artificial

<220>
 <223> HPR promoter sequence

<400> 4
 gaagcagcag aagccttgat catcttcctt tgtctcaacc tgaaactctt ttttttcttt 60
 cattgtttgt tctcttttca ctgtggatgt agataattgt ttttaatgaa atgaagaaat 120
 attgatttgc cttttgacat aattttgtta ataactctga ttacaaattt tagtcagtgt 180
 ttgatgcata gttgcatact gcagagttga gtttggatat ggccacgtca gcattatctc 240
 gttaccaaaa cgtaagggtcc aaactcagat aatacaaacg aagcagttct ttgtcactct 300
 atcatcaaca tatgaaccac accaaaaaag aacaaaatcg tagataatga tcatgcaaaa 360
 ccgaccgttg gatcttactt tcgatttcaa accacataaa tcttagtgac tgagctaaaa 420
 aactgaaatt ttttaaaagg caagacctcc tctgtttcca tattctcacc acagaagaac 480
 tcttgaggct ttctcttttc tctaccatgg cg 512

<210> 5
 <211> 288
 <212> DNA
 <213> Artificial

<220>
 <223> HPR truncated promoter sequence

<400> 5
 acgtcagcat tatctcggtta ccaaaacgta aggtccaaac tcagataata caaacgaagc 60
 agttctttgt cactctatca tcaacatatg aaccacacca aaaaagaaca aaatcgtaga 120
 taatgatcat gcaaaaccga ccgttggatc ttactttcga tttcaaacca cataaatctt 180
 agtgactgag ctaaaaaact gaaatttttt aaaaggcaag acctcctctg tttccatatt 240
 ctcaccacag aagaactctt gaggttttct cttttctcta ccatggcg 288

<210> 6
 <211> 26

<212> DNA
 <213> Artificial

 <220>
 <223> HPRC1aI primer

 <400> 6
 aaatcgatat ggcgaaaccg gtgtcc 26

 <210> 7
 <211> 29
 <212> DNA
 <213> Artificial

 <220>
 <223> HPRBamHI primer

 <400> 7
 cgggatactc atagcttcga aacaggcaa 29

 <210> 8
 <211> 29
 <212> DNA
 <213> Artificial

 <220>
 <223> HPRBamFW primer

 <400> 8
 aaaggatcca tggcgaaacc ggtgtccat 29

 <210> 9
 <211> 30
 <212> DNA
 <213> Artificial

 <220>
 <223> RD29AP1 primer

 <400> 9
 ttttaagcttg gagccataga tgcaattcaa 30

 <210> 10
 <211> 33
 <212> DNA
 <213> Artificial

 <220>
 <223> RD29AP2 primer

 <400> 10
 aaatctagac tttccaatag aagtaatcaa acc 33

 <210> 11
 <211> 29
 <212> DNA
 <213> Artificial

<220>
 <223> HPRXbaRE primer

 <400> 11
 aaatctagac gtttccatgt cacagggtg 29

 <210> 12
 <211> 29
 <212> DNA
 <213> Artificial

 <220>
 <223> HPRSacFW primer

 <400> 12
 aaagagctca tggcgaaacc ggtgtccat 29

 <210> 13
 <211> 29
 <212> DNA
 <213> Artificial

 <220>
 <223> HPRSacRE primer

 <400> 13
 aaagagctcc gtttccatgt cacagggtg 29

 <210> 14
 <211> 29
 <212> DNA
 <213> Artificial

 <220>
 <223> HPRP1Hind primer

 <400> 14
 aaaaagcttg aagcagcaga agccttgat 29

 <210> 15
 <211> 30
 <212> DNA
 <213> Artificial

 <220>
 <223> HPR2Bam primer

 <400> 15
 aaaggatccc gccatggtag agaaaagaga 30

 <210> 16
 <211> 30
 <212> DNA
 <213> Artificial

 <220>
 <223> HPR3Hind primer

<400> 16
 aaaaagctta cgtcagcatt atctcgttac 30

<210> 17
 <211> 44
 <212> DNA
 <213> Artificial

<220>
 <223> Oligonucleotide Adapter 1

<400> 17
 ctaatacgac tcactatagg gctcgagcgg ccgcccgggc aggt 44

<210> 18
 <211> 8
 <212> DNA
 <213> Artificial

<220>
 <223> Oligonucleotide Adapter 2

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> 3'-NH2 modification

<400> 18
 acctgccc 8

<210> 19
 <211> 27
 <212> DNA
 <213> Artificial

<220>
 <223> AP1 primer

<400> 19
 ggatcctaatacgcactcact atagggc 27

<210> 20
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> 28w1 primer

<400> 20
 agctggcgta atagcgaaga 20

<210> 21
 <211> 18
 <212> DNA
 <213> Artificial

<220>
 <223> AP2 primer

 <400> 21
 ctatagggct cgagcggc 18

 <210> 22
 <211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> 28w2 primer

 <400> 22
 cgttggagtc cacgttcttt 20

 <210> 23
 <211> 30
 <212> DNA
 <213> Artificial

 <220>
 <223> 28LAP1 primer

 <400> 23
 gttactgctg tgtttcttgc gaggtgactc 30

 <210> 24
 <211> 32
 <212> DNA
 <213> Artificial

 <220>
 <223> 28LAP2 primer

 <400> 24
 ctcaaagctg agaacagagt ctctccccaa tc 32

 <210> 25
 <211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> NPT 1 primer

 <400> 25
 attgcacgca gggtctccgg 20

 <210> 26
 <211> 19
 <212> DNA
 <213> Artificial

 <220>
 <223> NPT 2 primer

<400> 26
atcgggagcg gcgataccg 19

<210> 27
<211> 21
<212> DNA
<213> Artificial

<220>
<223> GG9 primer

<400> 27
ctgcatccgg cgaccttggt c 21

<210> 28
<211> 27
<212> DNA
<213> Artificial

<220>
<223> HPRXbaFW primer

<400> 28
aaatctagaa tggcgaaacc ggtgtcc 27

<210> 29
<211> 28
<212> DNA
<213> Artificial

<220>
<223> HPRSalRV primer

<400> 29
aaagtcgact catagcttcg aaacaggc 28

<210> 30
<211> 6
<212> DNA
<213> Artificial

<220>
<223> TATA box consensus sequence

<220>
<221> TATA_signal
<222> (1)..(6)

<400> 30
tataat 6